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At a recent convention, a visitor to the Environmental Health Information Service (EHIS) exhibition booth told us that in his opinion EHIS was the most important exhibit at the convention. The visitor, an oncologist, believed that the environment was a key factor in the development of many diseases. Even though this is a widely shared opinion, opinions such as this encourage the EHIS staff to continue providing the best and most reliable information to our users.

EHIS was started in 1997 to disseminate the latest information on the impact of the environment on human health. Currently, this Web-based service provides the electronic version of the journal *Environmental Health Perspectives* (*EHP*), various reports of the National Toxicology Program (NTP), and two very important databases (site-specific tumor rates for Fischer 344 rats and $B6C3F_1$ mice; and the NTP chemical health and safety database). Other sources of environmental health information will be added in the future.

The cornerstone of the EHIS is the journal *Environmental Health Perspectives.* The journal, which has been published since 1972, consists of a news section on current issues in environmental health, a medical section for medical professionals, commentaries, reviews, and individual research articles. A series of monographs and an annual review issue are published as supplements to the monthly journal.

The annual review supplement provides readers with articles that cover a broad range of topics in environmental health. Authors summarize new developments in their area of expertise and provide perspectives for these new findings. The generalist is not forgotten in the annual review issue, as our authors provide sufficient background information for those not familiar with the specific topic.

For our review this year, we selected topics in five general areas of environmental health: environmental disease mechanisms, cholinesterases and acetylcholine, toxicology, nonionizing radiation, and public health.

Four papers address cellular mechanisms of environmentally induced diseases. Because regulation of the cell cycle is important in maintaining homeostasis, reviews on cell cycle control were selected. There has been much progress in understanding signal transduction pathways and how they regulate cell cycle progression as well as the mechanisms that cells employ to ensure DNA stability in the face of genotoxic stress. Divalent calcium cation is also important in signal transduction, and it is quite clear that a number of toxic environmental chemicals target this aspect of the signaling process. Mechanisms involving divalent calcium in signal transduction have recently been found to be important in leading to diseases such as cancer, diabetes, autoimmune diseases and neurodegeneration. Individual susceptibility to the influence of environmental factors on disease such as cancer varies markedly. Reasons for this susceptibility to cancer have not been well understood, but recently advances have been made that include the discovery of how promoters mediate cell proliferation, causing permanent mutations in the gene. Identifying individuals who are susceptible to various diseases raises serious ethical questions about using this information to promote individual well-being without sacrificing an individual's privacy. The discovery of the *Bcl-2* gene family and its role in the development of prostate cancer will also bring this ethical issue to the forefront. This *Bcl-2* gene family regulates a crucial commitment step in the cell death pathway. With the identification of this gene family and the role of their resulting proteins, a new target for prostate cancer therapy has been found.

In 1998 Stan Barone Jr. (U.S. EPA), Dana Shuey (Rohm and Haas), and Stephanie Padilla (U.S. EPA) organized a workshop at the meeting of the Society of Toxicology on the roles of cholinesterases and acetylcholine in the developing nervous system. Because new evidence was presented at the workshop about the unique role that acetylcholinesterases play on the developing nervous system and the direct effect they may have on neuronal differentiation and development, we thought these findings should be brought to the attention of our readers. New information was also presented of the possible long-term effects on the developing nervous system of exposure to nicotine and chlorpyrifos.

Over the years unforeseen consequences have occurred from the use of certain chemicals. For example, plants synthesize potent phenolic compounds with diverse functions ranging from stabilization of plant structure to coloration of blossoms. The synthesis is modulated by external stimuli such as the use of herbicides. As phenolic compounds can persist long after the death of the plant, these potent chemicals could affect whole ecosystems and human health. Another finding receiving much attention is that certain

chemicals can act as estrogen mimics or can have other endocrine-disrupting potential. One such chemical is toxaphene, an insecticide and pesticide used in enormous quantities prior to it being banned by the U.S. Environmental Protection Agency. When the chemical was found in European waters, a research project was initiated in 1997 to review the current status of this chemical. The results of that review are presented here. Because of the deleterious effects of endocrine disruption, development of short-term estrogenicity tests to indentify hormone-disrupting chemicals is an important goal. However, labeling a chemical as an endocrine disrupter can have profound economic impacts on the manufacturer of the chemical as well as the end users. The reliability of any assay for endocrine disruption potential must be assured.

Exposure to radiofrequency radiation is a phenomenon of this century. Although much has been written about this problem, the area is still highly controversial and unsettled. We thought this area needed further examination and have included papers examining the possible effect of nonionizing radiation on the development of cancer and the specific issue of the association between nonionizing radiation and breast cancer.

Although the news media have covered the impact of global climate change extensively, there has been little discussion about the regional impact of global climate change in the United States. Generally, it has been assumed that the health system in the United States can absorb any adverse health effects. One paper explores this issue more closely and concludes that the deleterious health effects from global climate change may overwhelm some regional health care systems. A new field receiving much attention lately is that of geographic modeling and its potential role in environmental epidemiology studies is discussed. Geographic modeling uses data from geographic information systems (a series of computerized maps for storage and retrieval of an extensive amount of geographically indexed environmental data) to predict with greater precision an individual's exposure to environmental toxicants. Drinking water is an important source of exposure to toxicants and disease organisms. One paper provides data on waterborne diseases caused by bacterial, protozoal and viral pathogens. Another paper addresses the issue of maintaining control of pathogens in drinking water while ensuring that disinfection byproducts do not present health risks.

These articles explore and explain some of the many environmental issues that effect human health. Throughout the year, please continue to consult EHIS for information that will further advance the understanding of environmentally induced disease.